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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/787,144

02/27/2004

Shin-ichi Uehara

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04/05/2006

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WASHINGTON, DC 20037

EXAMINER

CALEY, MICHAEL H

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/787,144

Applicant(s)

UEHARA ET AL.

Examiner

Michael H. Caley

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-62 is/are pending in the application.
- 4a) Of the above claim(s) 3-10 and 19-62 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 15-18 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/23/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Information Disclosure Statement*

The information disclosure statement filed on 6/23/04 does not fully comply with the requirements of 37 CFR 1.98(b) because: a copy of "Three Dimensional Display" by Masuda et al. is missing. Since the submission appears to be *bona fide*, applicant is given **ONE (1) MONTH** from the date of this notice to supply the above mentioned omissions or corrections in the information disclosure statement. **NO EXTENSION OF THIS TIME LIMIT MAY BE GRANTED UNDER EITHER 37 CFR 1.136(a) OR (b).** Failure to timely comply with this notice will result in the above mentioned information disclosure statement being placed in the application file with the noncomplying information **not** being considered. See 37 CFR 1.97(i).

### *Election/Restrictions*

Claims 3-10 and 19-62 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 1/27/06.

### *Claim Objections*

Claims 15-18 are objected to because of the following informalities:

Referenced "said optimal observation distance OD" and "said expanded projection width e" lack antecedent basis. These characteristics of the display should be recorded without the "said" modifier since they have not been previously introduced.

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Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claims 1, 11, and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neijzen (U.S. Patent No. 5,731,857) in view of Inoue et al. (U.S. Patent No. 6,172,723 “Inoue”).**

Regarding claim 1, Neijzen discloses an image display device having:

a display panel which has a plurality of pixel sections (Figure 3a) provided in the form of a matrix, each pixel section including at least a pixel for displaying an image for a first viewpoint (Figure 3a element 27') and a pixel for displaying an image for a second viewpoint (Figure 3a element 27'');

a lens (Figure 3a element 61) disposed in front of the display panel, the lens being constituted by a plurality of lens elements (Figure 3a element 63) for refracting light emitted from each pixel to output the light in different directions (Figure 3a); and

a reflection plate (Figure 3a element 7) disposed in the display panel or in the rear of the display panel;

wherein the focal distance of the lens is different from the distance between the surface of the reflection plate and the apex of the lens (Column 8 lines 7-10).

Neijzen fails to disclose the reflection plate as having surface projections on the surface for reflecting exterior light to the lens. Inoue, however, teaches surface projections on a reflective surface used in combination with a microlens as advantageous to improve the contrast of the display (Column 12 line 46 – Column 13 line 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to include surface projections on the reflection plate of the display panel disclosed by Neijzen. One would have been motivated to include such surface projections as a means of improving the display contrast according to the teachings of Inoue.

Regarding claim 11, Neijzen discloses the focal distance of the lens as larger than the distance between the surface of the reflection plate and the apex of the lens (Column 8 lines 7-10).

Regarding claim 13, Neijzen as modified by Inoue discloses the relation among  $H$ ,  $f$ ,  $V$  and  $L$  as proposed. Neijzen discloses  $H/f$  as approximately  $\frac{1}{2}$  (Column 8 lines 7-10). Given that the projections are formed from a roughened surface of the pixel electrode and the lens pitch is equal to the pixel pitch, it would follow that  $V$  (projection pitch) is extremely small compared to  $L$  (lens pitch) in the display device taught by Inoue. In order to satisfy the proposed equation, there needs to exist at least two or more projections per pixel, given the ratio between  $H$  and  $f$  disclosed by Neijzen. Because Inoue teaches many projections within the roughened surface (see Figure 13 element 307), the combination of references teach the claimed limitations.

**Claims 2, 12, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neijzen in view of Inoue and Masuzawa (U.S. Patent No. 6,765,638).**

Neijzen as modified by Inoue discloses each of the proposed limitations except for each pixel as including a transmissive region and a reflective region. Masuzawa, however, teaches a reflective display having condensing microlenses (Column 13 lines 16-19) as configurable to have pixels with both transmissive and reflective regions (abstract, Column 19 line 66 – Column 20 line 8).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the display device disclosed by Neijzen to have both reflection and transmissive regions in each pixel. One would have been motivated to form the display device to have both reflective and transmissive regions to enable use of the display in poorly lit areas according to conventional methods of the art.

Regarding claim 12, Neijzen discloses the focal distance of the lens as larger than the distance between the surface of the reflection plate and the apex of the lens (Column 8 lines 7-10).

Regarding claim 14, Neijzen as modified by Inoue discloses the relation among  $H$ ,  $f$ ,  $V$  and  $L$  as proposed. Neijzen discloses  $H/f$  as approximately  $\frac{1}{2}$  (Column 8 lines 7-10). Given that the projections are formed from a roughened surface of the pixel electrode and the lens pitch is equal to the pixel pitch, it would follow that  $V$  (projection pitch) is extremely small compared to

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L (lens pitch) in the display device taught by Inoue. In order to satisfy the proposed equation, there needs to exist at least two or more projections per pixel, given the ratio between H and f disclosed by Neijzen. Because Inoue teaches many projections within the roughened surface of each pixel (see Figure 13 element 307), the combination of references teaches the claimed limitations.

#### ***Allowable Subject Matter***

Claims 15-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 15-18 should also be corrected to avoid the antecedent issues noted above.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to disclose or suggest a relationship between the optimal observation distance, expanded pixel projection width, lens refractive index, focal distance, and pitch of the pixels satisfying the proposed expressions.

#### ***Contact Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286.

The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

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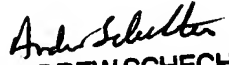
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael H. Caley

April 1, 2006

  
mhc

  
ANDREW SCHECHTER  
PRIMARY EXAMINER